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- 116. K. Akhtar, J. Scharer, R. L. Mills, "Substantial Doppler Broadening of Atomic Hydrogen Lines in DC and Capactively Coupled RF Plasmas," IEEE Transactions on Plasma Science, submitted.
- 115. R.L. Mills, H. Zea, J. He, B. Dhandapani, "Water Bath Calorimetry on a Catalytic Reaction of Atomic Hydrogen," International Journal of Hydrogen Energy, in press.
- 114. R.L. Mills, K. Akhtar, B. Dhandapani, "Tests of Features of Field-Acceleration Models for the Extraordinary Selective H Balmer  $\alpha$  Broadening in Certain Hydrogen Mixed Plasmas," J. Plasma Phys., submitted.
- 113. R.L. Mills, "Physical Solutions of the Nature of the Atom, Photon, and Their Interactions to Form Excited and Predicted Hydrino States," Physics Essay, in press.
- 112. R. L. Mills, J. He, Y. Lu, Z, M. Nansteel, Chang, B. Dhandapani, "Comprehensive Identification and Potential Applications of New States of Hydrogen," Int. J. Hydrogen Energy, Vol. 32, (2007), 2988–3009.
- 111. R. L. Mills, J. He, Z, Chang, W. Good, Y. Lu, B. Dhandapani, "Catalysis of Atomic Hydrogen to Novel Hydrogen Species H<sup>-</sup>(1/4) and H<sub>2</sub>(1/4) as a New Power Source," International Journal of Hydrogen Energy, Vol. 32(13), (2007), pp. 2573–2584.
- 110. R. L. Mills, J. He, Z, Chang, W. Good, Y. Lu, B. Dhandapani, "Catalysis of Atomic Hydrogen to Novel Hydrides as a New Power Source," Prepr. Pap.—Am. Chem. Soc., Div. Fuel Chem. 2005, 50(2).
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  - 108. R. L. Mills, J. He, M. Nansteel, B. Dhandapani, "Catalysis of Atomic Hydrogen to New Hydrides as a New Power Source," International Journal of Global Energy Issues (IJGEI). Special Edition in Energy Systems, in press.
- 107. R. L. Mills, "Maxwell's Equations and QED: Which is Fact and Which is Fiction," Physics Essays, in press.
- 106. R. L. Mills, "Exact Classical Quantum Mechanical Solution for Atomic Helium which Predicts Conjugate Parameters from a Unique Solution for the First Time," Physics Essays, submitted.

- 105. J. Phillips, C. K. Chen, R. L. Mills, "Evidence of Catalytic Production of Hot Hydrogen in RF-Generated Hydrogen/Argon Plasmas," International Journal of Hydrogen Energy, Vol. 32, (2007), 3010–3025.
- 104. R. L. Mills, Y. Lu, M. Nansteel, J. He, A. Voigt, W. Good, B. Dhandapani, "Energetic Catalyst-Hydrogen Plasma Reaction as a Potential New Energy Source," Division of Fuel Chemistry, Session: Advances in Hydrogen Energy, 228th American Chemical Society National Meeting, August 22–26, 2004, Philadelphia, PA.
- 103. R. L. Mills, Dhandapani, W. Good, J. He, "New States of Hydrogen Isolated from K<sub>2</sub>CO<sub>3</sub> Electrolysis Gases," Chemical Engineering Science, submitted.
- 102. R. L. Mills, "Exact Classical Quantum Mechanical Solutions for One- through Twenty-Electron Atoms," Phys. Essays, Vol. 18, No. 3 (2005), 321–361.
- 101. R. L. Mills, Y. Lu, M. Nansteel, J. He, A. Voigt, B. Dhandapani, "Energetic Catalyst-Hydrogen Plasma Reaction as a Potential New Energy Source," Division of Fuel Chemistry, Session: Chemistry of Solid, Liquid, and Gaseous Fuels, 227th American Chemical Society National Meeting, March 28-April 1, 2004, Anaheim, CA.
- 100. R. Mills, B. Dhandapani, J. He, "Highly Stable Amorphous Silicon Hydride from a Helium Plasma Reaction," Materials Chemistry and Physics, 94/2-3, (2005), 298-307.
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- 84. R. L. Mills, P. Ray, J. Dong, M. Nansteel, R. M. Mayo, B. Dhandapani, X. Chen, "Comparison of Balmer  $\alpha$  Line Broadening and Power Balances of Helium-Hydrogen Plasma Sources," Braz. J. Phys., submitted.
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- 3. R. Mills, Response to T. Ohta, Int J of Hydrogen Energy, Vol. 26, No. 11, (2001), pp. 1225.
- 2. R. Mills, Response to I Shechtman, Int J of Hydrogen Energy, Vol. 26, No. 11, (2001), pp. 1229–1231.
- 1. R. Mills, Response to A, K. Vijh, Int J of Hydrogen Energy, Vol. 26, No. 11, (2001), pp. 1233.

# **Test Reports**

Numerous test reports are available from BlackLight Power, including:
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### **Prior Conference Presentations**

- 58. R. L. Mills, J. He, Z, Chang, W. Good, Y. Lu, B. Dhandapani, "Catalysis of Atomic Hydrogen to Novel Hydrides as a New Power Source," Division of Fuel Chemistry, Session: Chemistry of Fuels and Emerging Fuel Technologies, 230th American Chemical Society National Meeting, August 28–September 1, 2005, Washington, DC.
- 57. B. Dhandapani, J. He, Z, Chang, H. Zea, K. Akhtar, Y. Lu, C. Jiang, R. L. Mills, "Catalysis of Atomic Hydrogen to Form Highly Stable Novel Hydrides," Division of Inorganic Chemistry, Session: Materials--Synthesis and Characterization, 230th

- American Chemical Society National Meeting, August 28–September 1, 2005, Washington, DC.
- 56. R. L. Mills, "The Grand Unified Theory of Classical Quantum Mechanics Workshop," at the Politecnico di Milano Technical University, Milan, Italy. Sponsored by the Politecnico Foundation, March 3, 2005.
- 55. R. L. Mills, "The Hydrino: Lower-level States of the Hydrogen Atom which Have Remarkable Consequences." Invited Evening Lecture at the 17the Symposium of Plasma Physics and Radiation Technology, sponsored by the Netherlands' Physical Society Section Plasma and Gas Discharge Physics and Research School Center for Plasma Physics and Radiation Technology, Lunteren, Netherlands, March 1–2, 2005.
- 54. R. L. Mills, "The Grand Unified Theory of Classical Quantum Mechanics Workshop," at the University of Eindhoven, Netherlands, February 28, 2005.
- 53. R. L. Mills, Y. Lu, M. Nansteel, J. He, A. Voigt, B. Dhandapani, "Energetic Catalyst-Hydrogen Plasma Reaction as a Potential New Energy Source," Division of Fuel Chemistry, Session: Advances in Hydrogen Energy, 228th American Chemical Society National Meeting, August 22–26, 2004, Philadelphia, PA.
- 52. R. L. Mills, BlackLight Power—Technical Presentation, Volta Institute, June 25, 2004, Como, Italy.
- 51. R. L. Mills, Y. Lu, M. Nansteel, J. He, A. Voigt, B. Dhandapani, "Energetic Catalyst-Hydrogen Plasma Reaction as a Potential New Energy Source," Division of Fuel Chemistry, Session: Chemistry of Solid, Liquid, and Gaseous Fuels, 227th American Chemical Society National Meeting, March 28-April 1, 2004, Anaheim, CA.
- 50. R. L. Mills, P. Ray, M. Nansteel, J. He, X. Chen, A. Voigt, B. Dhandapani, "Energetic Catalyst-Hydrogen Plasma Reaction as a Potential New Energy Source," (Division of Industrial and Engineering Chemistry Symposium), September 9, 2003, 226<sup>th</sup> American Chemical Society National Meeting, (Sept. 7–11, 2003), New York, NY.
- 49. B. Dhandapani, R. Mills, "Novel Liquid-Nitrogen-Condensable Molecular Hydrogen Gas" (Physical Chemistry Session), Wednesday, June 11, 2003, 36<sup>th</sup> Middle Atlantic Regional Meeting of American Chemical Society, (June 8–11, 2003), Princeton University, Princeton, NJ.
- 48. P. Ray, R. Mills, "Extreme Ultraviolet Spectroscopy of Helium-Hydrogen Plasma" (Physical Chemistry Session), Wednesday, June 11, 2003, 36<sup>th</sup> Middle Atlantic Regional

- Meeting of American Chemical Society, (June 8–11, 2003), Princeton University, Princeton, NJ.
- 47. R. Mills, "Novel Catalytic Reaction Of Hydrogen as a Potential New Energy Source" (Catalysis Session), Tuesday, June 10, 2003, 36<sup>th</sup> Middle Atlantic Regional Meeting of American Chemical Society, (June 8–11, 2003), Princeton University, Princeton, NJ.
- 46. J. He, R. Mills, "TOF-SIMS and XPS Studies of Highly Stable Silicon Hydride Films" (Inorganic/Solid State Session), Monday, June 9, 2003, 36<sup>th</sup> Middle Atlantic Regional Meeting of American Chemical Society, (June 8–11, 2003), Princeton University, Princeton, NJ.
- 45. B. Dhandapani, R. Mills, "Low Power MPCVD Synthesis and Characterization of Diamond Films on Silicon Substrates" (Inorganic/Solid State Session), Monday, June 9, 2003, 36<sup>th</sup> Middle Atlantic Regional Meeting of American Chemical Society, (June 8–11, 2003), Princeton University, Princeton, NJ.
- 44. X. Chen, R. Mills, "Calorimetric Study of Heat Generation by Catalytic Reaction of Atomic Hydrogen in Resonant Transfer Plasmas" (Fuel Cells Session), Monday, June 9, 2003, 36<sup>th</sup> Middle Atlantic Regional Meeting of American Chemical Society, (June 8–11, 2003), Princeton University, Princeton, NJ.
- 43. R. L. Mills, "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source," Division of Industrial and Engineering Chemistry, "Green Chemistry in the Design of Alternative Energy Strategies," symposium, Oral Presentation, 225<sup>th</sup> ACS National Meeting, (March 23-27, 2003), New Orleans, LA.
- 42. R. L. Mills, "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source," Monday, November 25, Room 216, Protocol Center, TA-3, Los Alamos National Laboratory.
- 41. R. L. Mills, "Classical Quantum Mechanics," Monday, November 25, Room 216, Protocol Center, TA-3, Los Alamos National Laboratory.
- 40. R. L. Mills, Seminar: "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source," US Environmental Protection Agency, National Risk Management Research Laboratory, Sustainable Technologies Division, Cincinnati, OH, October 24, 2002.
- 39. R. L. Mills, J. Dong, J. He, B. Dhandapani, A. Voigt, M. Nansteel, J. Sankar, R. M. Mayo, P. Ray, "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source," Division of Inorganic Chemistry, Oral Presentation, 224<sup>rd</sup> ACS National Meeting, (August 18-22, 2002), Boston, MA (Aug. 22, 4:10-4:30 PM).
- 38. R. L. Mills, J. Dong, J. He, B. Dhandapani, A. Voigt, M. Nansteel, J. Sankar, R. M. Mayo, P. Ray, "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source,"

- Division of Colloidal and Surface Chemistry, Oral Presentation, 224<sup>rd</sup> ACS National Meeting, (August 18-22, 2002), Boston, MA (Aug. 22, 8:30-8:50 AM).
- 37. P. Ray, R. Mills, "Spectroscopic Characterization of Stationary Inverted Balmer and Lyman Populations Formed by a Catalytic Reaction of Atomic Hydrogen with Oxygen and with Certain Group I Catalysts," Eighteenth International Conference on Atomic Physics, July 28-August 2, 2002, Cambridge, Massachusetts.
- 36. R. M. Mayo, R. L. Mills, M. Nansteel, "Direct Plasmadynamic Conversion of Plasma Thermal Power from a Novel Plasma Source to Electricity for Microdistributed Power Applications," 40<sup>th</sup> Power Sources Conference, (June 6–13, 2002), Cherry Hill, NJ.
- 35. R. L. Mills, J. Dong, J. He, B. Dhandapani, W. Good, A. Voigt, S. Hicks, M. Nansteel, E. Dayalan, P. Ray, "Spectroscopic Identification of a Novel Catalytic Reaction of Hydrogen," Division of Inorganic Chemistry, Oral Presentation, 223<sup>rd</sup> ACS National Meeting, (April 7–11, 2002), Orlando, FL.
- 34. R. L. Mills, J. Dong, J. He, B. Dhandapani, W. Good, A. Voigt, S. Hicks, M. Nansteel, E. Dayalan, P. Ray, "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source," Division of Inorganic Chemistry, Oral Presentation, 223<sup>rd</sup> ACS National Meeting, (April 7–11, 2002), Orlando, FL.
- 33. R. L. Mills, J. Dong, J. He, B. Dhandapani, W. Good, A. Voigt, S. Hicks, M. Nansteel, E. Dayalan, P. Ray, "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source," Division of Industrial and Engineering Chemistry, Oral Presentation, 223<sup>rd</sup> ACS National Meeting, (April 7–11, 2002), Orlando, FL.
- 32. R. L. Mills, J. Dong, J. He, B. Dhandapani, W. Good, A. Voigt, S. Hicks, M. Nansteel, E. Dayalan, P. Ray, "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source," Catalysis and Surface Science Secretariat, Oral Presentation, 223<sup>rd</sup> ACS National Meeting, (April 7–11, 2002), Orlando, FL.
- 31. R. L. Mills, J. Dong, J. He, B. Dhandapani, W. Good, A. Voigt, S. Hicks, M. Nansteel, E. Dayalan, P. Ray, "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source," Division of Physical Chemistry, Poster Presentation, 223<sup>rd</sup> ACS National Meeting, (April 7–11, 2002), Orlando, FL.
- 30. R. L. Mills, J. Dong, J. He, B. Dhandapani, W. Good, A. Voigt, S. Hicks, M. Nansteel, E. Dayalan, P. Ray, "Novel Catalytic Reaction of Hydrogen as a Potential New Energy Source," Division of Physical Chemistry, Sci-Mix Poster Presentation, 223<sup>rd</sup> ACS National Meeting, (April 7–11, 2002), Orlando, FL.
- 29. R. Mills, "BlackLight Power Technology-A New Clean Energy Source with the Potential for Direct Conversion to Electricity," The 8 th Annual Emerald Groundhog Day Investment

- Forum, February 5, 2002, Wyndham Franklin Plaza Hotel, Philadelphia, PA, Organized by Emerald Asset Management, Lancaster, PA.
- 28. R. L. Mills, E. Dayalan, "Novel Alkali and Alkaline Earth Hydrides for High Voltage and High Energy Density Batteries," Proceedings of the 17<sup>th</sup> Annual Battery Conference on Applications and Advances, California State University, Long Beach, CA, (January 15-18, 2002), pp. 1-6.
- 27. P. Ray, R. Mills, "Spectroscopic identification of a novel catalytic reaction of hydrogen plasma," Session ET1: Lighting, American Physical Society Meeting, 54th Annual Gaseous Electronics Conference, October 9–12, 2001, Pennsylvania State University, State College, PA.
- 26. R. Mills, "Novel catalytic reaction of hydrogen as a potential new energy source," Division of Industrial and Engineering Chemistry; Session: Industrial Bio-Based Technology, 222nd American Chemical Society Fall National Meeting, (August 26–30, 2001), Chicago, IL.
- 25. R. Mills, "Spectroscopic identification of a novel catalytic reaction of hydrogen," Division of Inorganic Chemistry; Session: Catalysis, 222nd American Chemical Society Fall National Meeting, (August 26–30, 2001), Chicago, IL.
- 24. R. Mills, "Spectroscopic identification of a novel catalytic reaction of hydrogen," Division of Physical Chemistry; Session: Physical Chemistry Poster Session, 222nd American Chemical Society Fall National Meeting, (August 26–30, 2001), Chicago, IL.
- 23. R. Mills, J. He, "Spectroscopic Identification of a Novel Catalytic Reaction of Atomic Hydrogen and the Hydride Ion Product," National Hydrogen Association, 12 th Annual U.S. Hydrogen Meeting and Exposition, *Hydrogen: The Common Thread*, The Washington Hilton and Towers, Washington DC, (March 6-8, 2001).
- 22. R. Mills, B. Dhandapani, M. Nansteel, N. Greenig, S. Hicks, J. Dong, "Optically Measured Power Balances of Anomalous Discharges of Mixtures of Argon, Hydrogen, and Potassium, Rubidium, Cesium, or Strontium Vapor," National Hydrogen Association, 12 th Annual U.S. Hydrogen Meeting and Exposition, *Hydrogen: The Common Thread*, The Washington Hilton and Towers, Washington DC, (March 6-8, 2001).
- 21. R. Mills, M. Nansteel, N. Greenig, S. Hicks, "BlackLight Power Technology-A New Clean Energy Source with the Potential for Direct Conversion to Electricity," National Hydrogen Association, 12th Annual U.S. Hydrogen Meeting and Exposition, *Hydrogen: The Common Thread*, The Washington Hilton and Towers, Washington DC, (March 6-8, 2001).
- 20. R. Mills, B. Dhandapani, M. Nansteel, J. He, A. Voigt, "Identification of Compounds Containing Novel Hydride Ions by Nuclear Magnetic Resonance Spectroscopy," National

- Hydrogen Association, 12 th Annual U.S. Hydrogen Meeting and Exposition, *Hydrogen: The Common Thread*, The Washington Hilton and Towers, Washington DC, (March 6-8, 2001).
- 19. R. Mills, "BlackLight Power Technology-A New Clean Energy Source with the Potential for Direct Conversion to Electricity," *The 8 th Annual Emerald Groundhog Day Investment Forum*, February 1, 2001, Wyndham Franklin Plaza Hotel, Philadelphia, PA, Organized by Emerald Asset Management, Lancaster, PA.
- 18. R. Mills, "The Grand Unified Theory of Classical Quantum Mechanics," Global Foundation, Inc. Orbis Scientiae entitled *The Role of Attractive and Repulsive Gravitational Forces in Cosmic Acceleration of Particles The Origin of the Cosmic Gamma Ray Bursts*, (29th Conference on High Energy Physics and Cosmology Since 1964) Dr. Behram N. Kursunoglu, Chairman, December 14-17, 2000, Lago Mar Resort, Fort Lauderdale, FL.
- 17. R. Mills, "BlackLight Power Technology-A New Clean Energy Source with the Potential for Direct Conversion to Electricity," Global Foundation, Inc. conference entitled *Global Warming and Energy Policy*, Fort Lauderdale, FL, November 26-28, 2000.
- 16. R. Mills, B. Dhandapani, N. Greenig, J. He, J. Dong, Y. Lu, and H. Conrads, "Formation of an Energetic Plasma and Novel Hydrides from Incandescently Heated Hydrogen Gas with Certain Catalysts," August National ACS Meeting (220th ACS National Meeting, Washington, DC, (August 20-24, 2000)).
- 15. R. Mills, J. He, and B. Dhandapani, "Novel Alkali and Alkaline Earth Hydrides," August National ACS Meeting (220th ACS National Meeting, Washington, DC, (August 20-24, 2000)).
- 14. R. Mills, B. Dhandapani, N. Greenig, J. He, J. Dong, Y. Lu, and H. Conrads, "Formation of an Energetic Plasma and Novel Hydrides from Incandescently Heated Hydrogen Gas with Certain Catalysts," June ACS Meeting (29th Northeast Regional Meeting, University of Connecticut, Storrs, CT, (June 18-21, 2000)).
- 13. Mills, J. Dong, N. Greenig, and Y. Lu, "Observation of Extreme Ultraviolet Hydrogen Emission from Incandescently Heated Hydrogen Gas with Certain Catalysts," 219 th National ACS Meeting, San Francisco, California, (March 26-30, 2000).
- 12. R. Mills, B. Dhandapani, N. Greenig, J. He, J. Dong, Y. Lu, and H. Conrads, "Formation of an Energetic Plasma and Novel Hydrides from Incandescently Heated Hydrogen Gas with Certain Catalysts," 219 th National ACS Meeting, San Francisco, California, (March 26-30, 2000).
- 11. R. Mills, "Novel Hydride Compound," 219 th National ACS Meeting, San Francisco, California, (March 26-30, 2000).

- 10. R. Mills, J. He, and B. Dhandapani, "Novel Alkali and Alkaline Earth Hydrides," 219 th National ACS Meeting, San Francisco, California, (March 26-30, 2000).
- 9. R. Mills, J. Dong, N. Greenig, and Y. Lu, "Observation of Extreme Ultraviolet Hydrogen Emission from Incandescently Heated Hydrogen Gas with Certain Catalysts," National Hydrogen Association, 11 th Annual U.S. Hydrogen Meeting, Vienna, VA, (February 29-March 2, 2000).
- 8. R. Mills, B. Dhandapani, N. Greenig, J. He, J. Dong, Y. Lu, and H. Conrads, "Formation of an Energetic Plasma and Novel Hydrides from Incandescently Heated Hydrogen Gas with Certain Catalysts," National Hydrogen Association, 11 th Annual U.S. Hydrogen Meeting, Vienna, VA, (February 29-March 2, 2000).
- 7. R. Mills, "Novel Hydride Compound," National Hydrogen Association, 11 th Annual U.S. Hydrogen Meeting, Vienna, VA, (February 29-March 2, 2000).
- 6. R. Mills, J. He, and B. Dhandapani, "Novel Alkali and Alkaline Earth Hydrides," National Hydrogen Association, 11 th Annual U.S. Hydrogen Meeting, Vienna, VA, (February 29-March 2, 2000).
- 5. R. Mills, J. Dong, Y. Lu, J. Conrads, "Observation of Extreme Ultraviolet Hydrogen Emission from Incandescently Heated Hydrogen Gas with Certain Catalysts," 1999 Pacific Conference on Chemistry and Spectroscopy and the 35th ACS Western Regional Meeting, Ontario Convention Center, California, (October 6-8, 1999).
- 4. R. Mills, "Novel Hydride Compound," 1999 Pacific Conference on Chemistry and Spectroscopy and the 35th ACS Western Regional Meeting, Ontario Convention Center, California, (October 6-8, 1999).
- 3. R. Mills, B, Dhandapani, N. Greenig, J. He, "Synthesis and Characterization of Potassium lodo Hydride," 1999 Pacific Conference on Chemistry and Spectroscopy and the 35th ACS Western Regional Meeting, Ontario Convention Center, California, (October 6-8, 1999).
- 2. R. Mills, J. He, and B. Dhandapani, "Novel Hydrogen Compounds," 1999 Pacific Conference on Chemistry and Spectroscopy and the 35th ACS Western Regional Meeting, Ontario Convention Center, California, (October 6-8, 1999).
- 1. R. Mills, "Excess Heat Production by the Electrolysis of an Aqueous Potassium Carbonate Electrolyte," August 1991 meeting of the American Chemical Society, NY, NY.